Supporting Information

Gold Decorated on 3D 2,6-Diaminopyridine Network; A Robust Catalyst for Bromination of Aromatic Compounds

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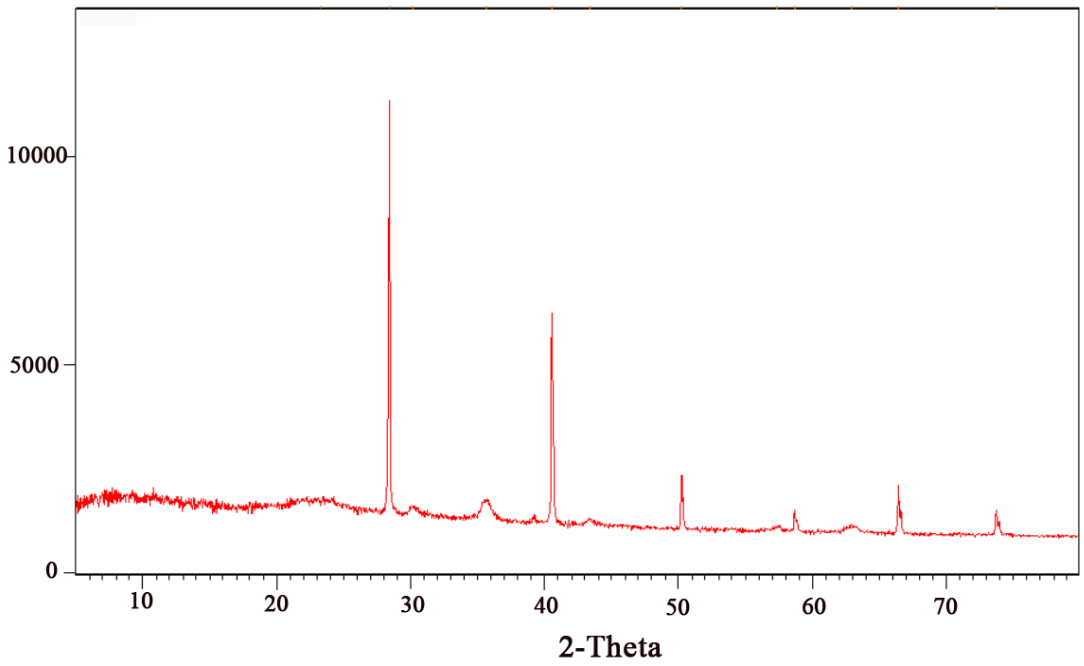

S1. XRD pattern of MNP@ DAPN

Spectral data of the compounds:

1-bromo-4-methylbenzene:

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.42 (d, *J* = 8.50 Hz, 2H), 7.10 (d, *J* = 8 Hz, 2H), 2.36 (s, 3H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 136, 131, 130, 119, 20.9.

1-bromo-4-methoxybenzene:

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.41 (d, *J* = 7 Hz, 2H), 6.83(d, *J* = 7 Hz, 2H), 3.79 (s, 3H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 158.72, 132.25, 115.76, 112.81, 55.41.

1-bromo-4-iodobenzene:

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.50 (d, *J* = 8.5 Hz, 2H), 7.25 (d, *J* = 8.25 Hz, 2H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 139, 133,122, 92.

4-bromoaniline:

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.28(d, *J* = 9.5 Hz, 2H), 6.57(d, *J* = 8.5 Hz, 2H), 3.68(s, 2H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 154, 132, 116,110.

1-bromo-4-chlorobenzene:

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.44 (d, *J* = 8.5 Hz, 2H), 7.24 (d, *J* = 8.5 Hz, 2H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 133.22, 132, 130.17, 120.3.

4-bromo-1, 1'-biphenyl:

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.72-7.71(m, 4H), 7.71-7.70 (m, 2H), 7.61-7.60 (m, 1H), 7.58-7.52 (m, 2H); ^{13}C NMR (125 MHz, $CDCl_3$) δ140.16, 140, 131.93, 128.97, 128.8, 127.71, 127,121.

1-bromonaphthalene:

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.40(d, *J* = 8.5 Hz, 2H), 8.00-7.95(m, 3H), 7.78-7.69(m, 1H), 7.49-7.45(m, 1H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 143.7, 132.1, 130, 128.4, 128.06, 127.4, 127.2, 126.8, 126.3, 122.9.

Bromobenzene:

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.56-7.54 (d, *J* = 7.5 Hz, 2H), 7.35-7.26(m, 3H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 132, 130.5, 127.3, 123.

9-bromophenanthrene:

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.69-7.64(m, 2H), 8.41-8.39 (m, 2H), 8.12 (s, 1H), 7.82-7.61(m, 4H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 132.2, 131.3,130.5,130.3,129.7,128.1,127.8,127.5, 127.4,127.2, 127, 122.8, 122.7, 121.7.

5-bromo-2-hydroxybenzaldehyde:

^{1}H NMR (500 MHz, $CDCl_3$) δ 10.94 (s, 1H), 9.85(s, 1H), 7.68-7.50 (1H, m), 7.28 (s, 1H), 6.92(d, *J* = 8.5 Hz, 1H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 195.4, 160.5, 139.6, 135.6, 121.7, 119.8, 111.3.

1-bromo-3, 5-dinitrobenzene:

^{1}H NMR (500 MHz, $CDCl_3$) δ 9.01 (s, 1H), 8.70 (s, 2H) ^{13}C NMR (125 MHz, $CDCl_3$) δ117.7, 121.7, 135.6, 149.6.

5-bromoisophthalic acid:

^{1}H NMR (500 MHz, $CDCl_3$) 8.39 (s, 1H), δ 8.12 (s, 2H); ^{13}C NMR (125 MHz, $(CD_3)_2SO$)) δ 165.5, 135.6, 131.9, 128.8, 121.6.

3-bromo-5-nitrosalicylaldehyde:

^{1}H NMR (500 MHz, $CDCl_3$) δ 12.24 (s, 1H), 9.85 (s, 1H), 8.68 (s, 1H), 8.48 (s, 1H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 195.4, 160.5, 140.1, 135.6, 128.8, 119.8, 111.3.

3-bromo-5-nitrobenzoicacid:

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.96 (s, 1H), 8.64 (s, 1H), 8.45 (s, 1H); ^{13}C NMR (125 MHz, $(CD_3)_2SO$) δ 164.5, 148.6, 135.6, 132.2, 129.7, 121.7, 119.8.

4-bromophenol:

^{1}H NMR (500 MHz, $CDCl_3$) 7.82 (d, *J* = 7.5 Hz, 2H), δ 7.57 (d, *J* = 7.5 Hz, 2H), 5. 12 (s, 1H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 158.7, 132.6, 121.6, 116.7.

1-bromo-4-fluorobenzene:

^{1}H NMR (500 MHz, $CDCl_3$) δ7.28 (d, *J* = 9.5 Hz, 2H), 7.69 (d, *J* = 7 Hz, 2H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 160.1, 135.6, 134.7, 121.7.

1-iodo-3, 5-dinitrobenzene:

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.72 (s, 1H), 8.08 (s, 2H) ^{13}C NMR (125 MHz, $CDCl_3$) δ 93.5, 122.1, 134.4, 143.5.

1-chloro-3, 5-dinitrobenzene:

^{1}H NMR (500 MHz, $CDCl_3$) δ 8.64 (s, 1H), 8.86 (s, 2H) ^{13}C NMR (125 MHz, $CDCl_3$) δ 116.7, 122.1, 125.5, 143.3.